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Submissions: We solicit articles and reader's comments. Contributions of 1,500 words or less are ideal. Submit contributions, double-spaced in MS Word. Include name, title, complete unit address, telephone numbers, and e-mail address. Graphics can appear in an article, but you must also provide a **separate computer file for each graphic and photograph (photos must be 300 dpi)**. Send e-mail submissions to alsadirector@langley.af.mil. ALSA Center reserves the right to edit content to meet space limitations and conform to the *ALSB* style and format. **Next issue: Sep 2010. Submission DEADLINE: COB 1 July 2010.** Theme of this issue is "Cordon and Search."

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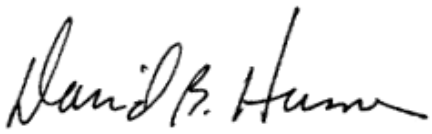
Cover photo — An A-10 Thunderbolt II, like this one, is among the various US Central Command Air Forces air assets available for providing close air support for troops in contact with enemy forces in Iraq and Afghanistan. The A-10 is specially designed for close air support of ground forces. (USAF photo/Capt Justin T Watson)

Director's Comments

The Air Land Sea Application (ALSA) Center will celebrate its 35th birthday this July. Since its beginning in 1975, ALSA continuously works to rapidly develop multi-Service tactics, techniques, and procedures (MTTP) to meet the immediate needs of the warfighter. We are committed to solving interoperability problems for the Soldiers, Sailors, Airmen, Marines, and Coast Guardsmen who live and fight at the tactical level of war; the purpose of the Air Land Sea Bulletin (ALSB) is to provide a forum for warfighters to discuss "what worked" and "what needs to get fixed." Currently, we have 8 active projects in various phases of development with 10 additional publications going into research for revision this year. Speaking of our next ALSB, the theme is "Cordon and Search" with article submissions due 1 July 2010 for the September 2010 issue. It should be a good production.

Close air support (CAS) is the theme of this ALSB. CAS is an essential form of the application of airpower that supports ground operations and has been an important aspect of military operations since the advent of the airplane. We start off with a piece by Lt Col "Western" Sisler who highlights how CAS contributed to counter indirect fire (C-IDF) operations during the deployment to Baghdad in the Summer of 2007. He gives us good procedures both ground and air forces may use when participating in this type of operation. Our second article highlights the capabilities of the US Army's attack and reconnaissance aviators. In it, CW4 Boyle advocates their use as Joint Fires Observers (JFOs) within CAS operations. He makes his argument that these highly skilled aviators already possess many of the qualifications needed to be JFOs and may provide assistance as when air support is needed and no other ground tactical air control party/ joint terminal attack controller (TACP/JTAC) is available. Maj Vessey, a Marine aviator assigned to the USAF's JTAC/air liaison officer (ALO) school as the Marine Liaison Officer (MARLO), contributes to our bulletin by highlighting some observations he's made on the differences between Marine and USAF/USA CAS operations and training. He compares and contrasts the Services and provides some suggestions on how we may learn from adopting a CAS interoperability association or liaison similar to the Marine Corps. Maj Vessey's article is followed by a commentary written by a couple of his 6th Combat Training Squadron-mates, Capt "Vifa" Campbell and TSgt Astrauskas. They provide some schoolhouse insights on what CAS pilots need to know, how they can improve their tactics, and some suggestions from a JTAC instructor on training and procedures. Next, we present an intriguing article by Capt Abram Burk on how digital link technology is being adopted in CAS operations. His piece titled *Datalink CAS: Terminology and Application,* outlines how aircrews are using datalink to decrease their CAS response time. We finish this edition of the ALSB with a piece straight from the field. Lt Col Matt Foley and Maj Bryan Trinkle are both currently deployed to Afghanistan and are heavily involved in CAS operations supporting the current counterinsurgency (COIN) fight and the overall coalition effort. A good read for CAS operators preparing to deploy.

I would like to wish CAPT Matthew Danehy "fair winds and following seas" as he continues to excel in the Navy and reports for duty as the new deputy commander of Airborne C2 and Logistics Wing, Norfolk NAS, VA. CAPT Danehy's contributions to ALSA were immense and he will be sorely missed. We also have to say goodbye to Lt Cols David "Norm" Kilcher and Aaron Polston as they recently departed for new assignments. However, we welcome aboard our new Navy action officer, LCDR Cynthia "Squat" Dieterly as well as our new Marine officer Maj Jeffrey "Richie" Hughes. We look forward to their contributions and expect great things from them. Enjoy the ALSA Bulletin and please, as always, give us feedback!



DAVID B. HUME, Colonel, USAF
Director

Close Air Support in the Indirect Firefight

USAF SSgt Pete Wartena passes a joint terminal attack controller (JTAC) call to Capt Joby Bennett at the air support operations center (ASOC) in Camp Victory, Iraq, 27 April 2007. Wartena is the JTAC flight duty technician and Bennett is the air liaison officer flight officer, both assigned to the 3 ASOC. (USAF photo by TSgt Cecilio M. Ricardo, Jr.)

By
Lt Col Jim "Western" Sisler, USAF

BAGHDAD, SUMMER OF 2007

During the Summer of 2007, MND-B experienced regular IDF attacks throughout the Division's area of operations.

Enemy use of indirect fire (IDF) weapons (rockets and mortars) against coalition forces is a continuing threat. Conducting fixed-wing counter indirect fire (C-IDF) operations requires detailed integration between all units/Services supporting the effort. Close air support (CAS) aircraft can successfully contribute to a C-IDF effort with proper planning and execution.

MULTI-NATIONAL DIVISION BAGHDAD (MND-B)

During the summer of 2007, MND-B experienced regular IDF attacks throughout the Division's area of operations (AO). The MND-B AO was extremely small, from an Airman's point of view. Within an approximately 10 NM by 15 NM area, there were six Army brigades (BDEs). This made airspace coordination and the passing of positive identification extremely difficult. Despite these difficulties, fixed-wing aircraft controlled by the 9th Expeditionary Air Support Operations Squadron (9 EASOS) tactical air control party (TACP) were able to successfully support C-IDF operations, responding to 58 IDF attacks. In 28 of the attacks, fixed-wing aircraft were able to get their sensors onto the point of origin (POO) in time to contribute information to the ground forces. None of this information was pre-attack—there is so much clutter and activity in an urban environment that finding a mortar team or rocket launchers is extremely difficult. C-IDF operations in an urban

environment are reactive efforts that require aircraft on-station to catch shooters in the act.

C-IDF PLANNING

While C-IDF operations were a reactive effort, it was possible to utilize historical analysis to determine when to have aircraft overhead. The MND-B Fires and Effects Cell (FEC) maintained an extensive database of IDF events that was updated daily. This analysis was broken down by geographical location as well as time—both day of the week and specific times during each day. Based upon peak IDF times, the Division TACP generated air support requests (ASRs) in support of these operations.

Due to the difficulty of finding IDF before attacks, aircraft had to be in close proximity to the expected POOs. These aircraft could, however, be utilized for other tasks until an attack occurred. The Division TACP was responsible for assigning aircraft to mission requests from the BDE/battalion (BN) TACP, essentially a predecessor of the Joint Air to Ground Integration Cell (JAGIC). The aircraft conducted counter-improvised explosive device (C-IED) searches in response to ground force movements or in response to information from Iraqi citizens or conducted armed overwatch for short-notice ground missions. With six BDEs to support, there was never a lack of support requests. Rather than requesting many individual missions from the air support operations center (ASOC), CAS assets were distributed in the MND-B AO.

Controlling CAS at the Division level provided several advantages. First, since the majority of non C-IDF support requests were event-driven (Armed overwatch in the form of convoy support or Rapid Reaction Force support) and not time-driven, it permitted flexibility to support these missions during the C-IDF ASR time. Second, it facilitated air component planning by filling the majority of MND-B needs without needing dozens of individual ASRs from the BDEs. As long as there was at least one targeting pod equipped aircraft over Baghdad, the 9 EASOS was capable of responding to a POO. Finally, C-IDF support did not eliminate the ability of the ground units to request their own CAS to meet individual unit requirements.

C-IDF EXECUTION

The 9 EASOS Division TACP was the command and control agency for the operation. This was coordinated in advance through the ASOC and Multi-National Corps–Iraq (MNC-I). Aircraft were able to respond to IDF POOs in any sector of the AO. If there were multiple IDF POOs at one time, attacks on the International Zone took precedence. A troops in contact (TIC) situation or suspicious vehicle track took precedence over a current attack. 9 EASOS did not want to relinquish a current track or take support away from a known TIC situation to conduct a search.

Speed of response is critical to a successful C-IDF effort.

PROCEDURES

Speed of response is critical to a successful C-IDF effort. The enemy was very quick to depart the POO location. A joint effort is required that integrates not only the airborne sensors, but static sensors (cameras in balloons or on towers), or ground forces as well. All available sensors need to slew to the POO in order to catch the attack in progress and provide a positive identification. The static sensors then pass the identification to the aircraft that can track vehicles or personnel through the urban clutter. Rotary wing aircraft can also track vehicles or personnel, but they are much more visible to the enemy whereas fixed-wing aircraft can remain out of sight and/or hearing.

Since aircraft might be supporting any of the six different BDEs, the most important priority was to get the aircraft and its sensors moving towards the POO.

CAS/C-IDF PROCESS: The following procedure was used in the C-IDF fight using CAS assets to support the ground commander:

1. POO report was announced over the radio/on mIRC chat.
2. MND-B Division JTAC posted POO information in the TACP mIRC window and announced POO information on the Joint Air Request Net. (Alerted TACP who may not be looking at mIRC.)
3. Controlling BDE/BN JTAC directed aircraft to POO.
   a. If POO was in a different sector, these procedures were continued until POO sector TACP was on freq.
   b. Conducted handover of aircraft to POO sector TACP, as time permitted.
4. Recorded time aircraft reported pod on POO (trend analysis).
5. Responded to situation, as required.
   a. Positive identification (PID) of IDF—track / engage in accordance with rules of engagement (ROE)/special instructions (SPINS).
   b. Suspicious personnel / vehicles—track.
   c. Nothing found—return to previous mission.
6. Reported results in Joint Effects Report or Mission Report—were as detailed as possible.
   a. Callsign of aircraft on station. (If no aircraft, stated why—tanker, mission not supported, etc.)
   b. Time of POO.
   c. Time to get pod on POO.
   d. Results:
      (1) Found POO thermal signature (for rockets)? Y/N
      (2) PID of IDF crew? (Aircraft witnessed an attack in progress.)
      (3) Contact on suspicious personnel / vehicles with results of tracking effort.
         (a) Grid.
         (b) Description of personnel / vehicles.
         (c) Location of personnel / vehicle stops.
   e. Additional remarks:
      (1) Airspace difficulties.
      (2) Radio communications difficulties.
      (3) Aircraft re-tasked during tracking of suspicious personnel/vehicle.

Figure 1. CAS/C-IDF Procedure

If necessary, TACP from the brigade that the aircraft was working with would control the aircraft and pass data until the TACP in the POO sector could establish contact with the aircraft. The procedure is outlined in figure 1. Since this was a new procedure at the time, as much data as possible was needed to determine effectiveness. Without accurate data and facts, it was impossible to refine procedures and determine whether or not this was an effective tactic. The JTACs were pushed for as much detail as they could provide.

C-IDF RESULTS

From May to July 2007, when aircraft were on-station and able to respond to IDF events, the results were:

Total IDF Attacks	**58**	
Positive Identification	4	6.9%
Suspicious Vehicle/ Personnel	24	41%
Nothing Significant to Report	30	52%

After July 2007, the number of attacks dropped significantly preventing further analysis and refinement of these techniques. In addition, remotely piloted vehicles (RPVs) were not available on a regular basis, but these procedures will work for any type of aircraft. Technological advancements, such as digital POO information transmitted to the aircraft, will greatly reduce the time required to get sensors on target, enhancing the effectiveness.

SUMMARY

CAS in C-IDF operations utilizes airpower's responsiveness to support high-priority, reactive events. These rocket and/or mortar attacks will continue to be a tactic utilized by our enemies until we demonstrate the capability to defeat these attacks. While arguably not the most efficient use of airpower, political and military realities require all available forces to support in the best way possible. Fixed-wing aircraft or RPVs can provide significant contributions to C-IDF operations, if properly planned and executed in conjunction with sister Services.

After July 2007, the number of attacks dropped significantly preventing further analysis and refinement of these techniques.

The setting sun silhouettes US Army Soldiers assigned to the Army 1st Infantry Division and US Air Force Airmen from the 116th Expeditionary Air Support Operations Squadron (EASOS) working together as part of a tactical air control party (TACP) to clear the area of threats around Balad Air Base, Iraq, during Operation IRAQI FREEDOM. (USAF Photo by SSgt Aaron D. Allmon II)

Joint Fires Observer (JFO) for US Army Attack and Reconnaissance Aviators

A US Army AH-64D Apache Longbow helicopter, armed with AGM-114 Hellfire air-to-ground missiles and 2.75-inch rocket pods, in flight during a test conducted at the Boeing/McDonnell Douglas facility, located near Mesa, AZ. (US Army Photo)

By
CW4 Michael P. Boyle, USA

Army aviation can easily increase the number of qualified observers serving in the Army by including all attack and reconnaissance aviators.

Sometimes you just need a few more rounds or a bigger boom to service a specific target. The weapons organic to US Army attack and reconnaissance helicopters provide effects sufficient for most battlefield targets, but generally not powerful or plentiful enough to take out targets such as buildings or underground bunkers. Fixed-wing manned and unmanned aircraft such as those in service with the US Air Force, Navy, Marine Corps and coalition forces fill in the gaps. They carry weapons including Hellfire, Maverick, 500lb-2,000lb bombs, and small diameter bombs (SDBs) capable of servicing targets in cooperation with helicopter target management. The problem lies in clearing joint assets to release ordinance on a target when a qualified and current observer isn't present. Army aviation can easily increase the number of qualified observers serving in the Army by including all attack and reconnaissance aviators. This simple improvement brings more relevancy to joint assets and dramatically increases effects while simultaneously reducing airborne bureaucracy.

THE BACKGROUND

Before the release of the joint tactics, techniques, and procedures for close air support (CAS) publication (Joint Publication [JP] 3-09.3) in July 2009, Army aviators regularly performed duties as target observers for Air Force fixed-wing air assets controlling the maneuver of the aircraft up to and including weapons release. Although the JP is non-regulatory, the writing defines how CAS assets should be employed and established that joint terminal attack controllers (JTACs) and their

airborne equivalents, forward air controllers (airborne) [FAC(A)s] are the primary controllers for CAS assets. JP 1-02, *Department of Defense Dictionary of Military and Associated Terms*, states that a JTAC is “a qualified (certified) Service member who, from a forward position, directs the action of combat aircraft engaged in close air support and other offensive air operations.” The definition further states that a JTAC “will be recognized across the Department of Defense as capable and authorized to perform terminal attack control.” The definition of terminal attack control out of JP 3-09.3 is: “The authority to control the maneuver of and grant weapons release clearance to attacking aircraft.” In the eyes of the Air Force, these references establish that only those qualified and certified for terminal attack control are recognized to perform those actions. With no past requirement and currently no such process to qualify and certify Army aviators in the necessary tasks for terminal attack control, we have lost that capability unless the joint community changes the JP 3-09.3. With the reasoning behind the establishment of limited individuals being able to control joint fires at least partially due to a number of past fratricide and collateral incidents, the probability of that change is low. None of this matters if enough JTACs exist to fill every position in every Army ground combat unit's platoons, thus giving the ground commanders continuous access to CAS, but the Air Force is thousands short of meeting that mark. To fill the gaps, the Army, Air Force, and US Special Operations Command (USSOCOM) agreed in 2005 on the establishment of a new Army training program producing joint fires observers (JFOs).

JOINT FIRES OBSERVERS (JFOs)

A JFO is “A trained service member who can request, adjust, and control surface-to-surface fires, provide targeting information in support of Type 2 and 3 CAS terminal attack controls, and perform autonomous terminal guidance operations (TGO)." Between August 2005 and November 2008, the JFO course at Fort Sill, OK, produced 1,063 certified JFOs, and it can sustain more than 500 graduates per year at current production levels. By filling the JTAC gaps, the JFOs give the ground commanders better access to CAS. However, JFOs must still communicate through a qualified and current JTAC/FAC(A) for the CAS asset to engage the target (unless the unit is in need of emergency CAS, i.e., in contact with the enemy). The JFO program has helped immensely, but has compounded the problem for Army aviators as many anecdotal stories from Iraq and Afghanistan testify that JTACs have refused targeting requests from Army attack and reconnaissance aviators since they are not listed on the air tasking order (ATO) as qualified observers.

There is no regulatory reason for JTACSs to deny targeting data from Army aviators.

THE PROBLEM

There is no regulatory reason for JTACs to deny targeting data from Army aviators. It occurs because the JP 3-09.3 states that a "JTAC acquires the target or acquires targeting data from a scout, combat observation and lasing team (COLT), fire support team (FIST), unmanned aerial vehicle (UAV), special operations forces (SOF), or other assets with accurate real-time targeting information." The ambivalence of “other assets” leaves the decision up to the JTAC as to who can provide accurate real-time targeting. Army aviators fly some of the most advanced attack and reconnaissance aircraft in the world and usually have better situational awareness than the troops on the ground due to their advanced sensors and ability to see the "big picture" from altitude. They have the training and authority to engage the enemy with their own weapons, their sister ship's weapons (in cooperative

engagements), and artillery (including providing terminal laser guidance for precision guided artillery). It appears appropriate to consider these highly trained professionals competent enough to provide targeting information through a JTAC/FAC(A) to a CAS asset, including the ability to terminally guide laser guided weapons.

THE WAY AHEAD

Three options present themselves with only one being truly viable. The first option is to train Army attack and reconnaissance aviators as FAC(A)s. This is prohibitive for two reasons. The first is that the Army doesn't have a FAC(A) school, forcing us to rely on the Marine Corps due to their existing helicopter FAC(A) training program. This is costly and puts a burden on the USMC's ability to train their own aviators if we send aviators to their school in the numbers we need. The second reason is that the currency requirements for FAC(A)s require a minimum of 12 controls a year with live aircraft where JFOs may do simulated controls. The Air Force has difficulty maintaining the currency of their own FAC(A)s due to limited training sorties available at home station and Army FAC(A)s would add to that strain. According to the USMC, who trains all pilots-in-command (PICs) as FAC(A)s, you need between 33-50% of the unit's aviators to be qualified and current to meet mission requirements. This model forces us to send more Army aviators through the USMC's school than USMC aviators. Of course, we could establish our own FAC(A) school based at least partially on the USMC model, but once again, the cost is prohibitive and maintaining currency would still be an issue. The second option for the Army is to train aviators as JFOs through either sending them to the 2-week resident JFO course at Fort Sill, OK, or by establishing a JFO school at Fort Rucker. This is also cost prohibitive, thus limiting the number of aviators trained. By limiting their numbers, many missions flown in Iraq or Afghanistan will fail to include a single JFO from the four aviators flying in a typical 2-ship mission. This gap is unacceptable to the ground commander who may lack both JTACs and JFOs (a real possibility due to the ongoing shortage of both). The third option requires the Fires Center at Fort Sill, OK; the USAF; and USSOCOM to accept that the current training all Army attack and reconnaissance aviators receive in flight school provides equivalency (or near equivalency) to the training JFOs receive at Fort Sill. The current JFO syllabus (March 2009) consists of 1 week of academics and 1 week of simulated/live training. In flight school, the aviators receive a total of about 6 academic hours covering the same subjects that the JFO school teaches in about 23.6 hours (if you compare apples to apples with about 6.5 hours being redundant for the aviators). This disparity can either be accepted as is, or the flight school academics will need to be adjusted to meet the same standards as the JFO school. Additionally, the 35 or so additional simulator/live training hours the JFOs receive are more than made up by the aviators during the gunnery and mission training they receive as part of flight school as the JFOs are taught as a class and the aviators are trained one on one in the cockpit. As for cost, the only additional cost will come from the additional academics for the students if they are required to match hour for hour with the JFO school. Also, for currency, existing helicopter simulators provide superb control replication (if no fixed-wing assets are available for live training), and both AH-64D and OH-58D helicopters training manuals already contain control tasks of a JFO. This course of action is apparently the only viable option due to cost and function (all aviators trained as

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opposed to some or none) and requires only a new memorandum of agreement to be signed in order to be implemented.

CONCLUSION

Supporting the ground commander is what CAS is all about. Limiting the use of attack and reconnaissance aircraft in the role of targeting observer is also potentially limiting the ground commander as to what CAS options he has and can put lives at risk. Accepting that Army attack and reconnaissance aviators are equivalent to JFOs, will cost little or no money and will give back to these aviators the same capabilities they had in the past.

Combined Arms in the CAS Firefight

US Marine Corps Capt Aaron P. McGrew, from Headquarters Company, 2nd Battalion, 8th Marine Regiment, listens as Cpl Brian T. Short communicates with a pilot as part of a tactical air control party (TACP) at a range outside Camp Taqaddum, Iraq, 29 March 2008. The TACP is being conducted to maintain aircrew proficiency, train future squad leaders in the employment of air and indirect fire, and maintain proficiency among mortarmen. (USMC photo by Cpl Jeremy M. Giacomino)

"We must remember that one man is much the same as another, and that he is best who is trained in the severest school." —Thucydides

By
Maj William "Francis" Vessey, USMC

Much of the Air Force execution in the field of close air support (CAS) is technology based, utilizing systems and aircraft that are very useful in the CAS fight. Integrating this into training and eventually to the battlefield however seems to be less successful than one would expect. In the current fights overseas, and to better prepare the Army / Air Force team, realistic CAS training and integration must begin to be executed. The emphasis on reduction of collateral damage, integration of forces, precision and

flexible systems, and justifying our weapons systems to the theatre commanders, requires training and doctrine that achieves effective combined arms. It cannot be ignored any longer; the current and future fight will be CAS-centric, requiring the most effective use of combined arms.

COMPARING AND CONTRASTING SERVICES

Effective CAS requires detailed integration with the ground scheme of maneuver. The USMC integrates their pilots and ground officers at the earliest level, Officer Candidate School. Later in their career the chain of command puts forward air controllers (FACs) both on the ground and airborne, in a position to coordinate face to face with the ground commander, creating a trust between ground and air forces that makes for effective CAS. Work-up training utilizes live fire from artillery, aircraft, and ground forces integrated with realistic staff planning and execution. In short, the system trains to the highest and most severe standard prior to going into combat.

The aircrew can gain the commander's trust through increased coordination and understanding on how responsibility is delegated to the FAC(A).

While the US Army has requested a greater amount of joint terminal attack controllers (JTACs) and is building a more robust air liaison officer (ALO) community, there is friction that exists in the training and execution of CAS. While the ground commander has a specific requirement for integration at his level, it appears that there is a break down. From training at the National Training Center (NTC) to execution in the field, there is no detailed face to face brief with aircrew and combined arms live fire training. It must be understood that the only justification for airpower in the CAS fight is to further the ground scheme of maneuver.

FAC(A) AND CAS AIRCREW INTEGRATION

FAC(A) integration has been the topic of many articles and discussions as of late. Now with the possibility of a dedicated light attack/FAC(A) platform (OA-X), the situation continues to develop. Technology in weapons and sensors has also reached a peak. This is all great, but without realistic combined arms training and integration, a great opportunity may be lost.

First, the USAF FAC(A) communities must integrate into the ground scheme of maneuver. While it may seem like a waste of time to a fighter pilot, what must be understood is that, that one day sitting in on a briefing and making liaison with the ground commander will pay dividends when the FAC(A) is utilized to his full potential. Having the pilot flying the missions in the room with those he is supporting always builds trust. Without a dedicated effort from the regular flying community to make liaison, and relying only on ALO support, the effective use of CAS assets can be lost. On a day to day basis the ALO has the ability to influence and advise, but the aircrew must understand that building a team requires members to be in the same room. Failure to liaise leads to extended time in coordination on the battlefield, where lives and opportunities can be lost.

The FAC(A) is an extension of the tactical air control party (TACP). His conduit is the JTAC on the ground. The aircrew can gain the commander's trust through increased coordination and understanding on how responsibility is delegated to the FAC(A). This will further help the JTAC clear fires when everyone knows the command and control procedures prior to receiving the ATO schedule. In addition the FAC(A) will utilize his full potential on the battlefield, controlling more than just other aircraft, but all of the combined arms weapons available. This cannot be achieved without the full trust and coordination of the ground commander.

This FAC(A) pilot can also double as the expert on the scheme of maneuver (SOM) for the CAS fight when he returns to the squadron. Having a coherent point of contact is critical. Creating a network of pilots, ALOs, and ground commanders that can communicate critical information and integrate the fight, with a small effort put forward, is also essential.

In training there has to be a dedicated effort at Green Flag and other large force exercises (LFEs) to build this liaison. Having flight crews fly via helicopter or drive to the NTC at Ft. Irwin for a face to face brief will be required. The Army in turn must have its commanders put forward an effort to accommodate the air fight into the training. All planning must be integrated, despite who is being supported, and who is supporting. The USAF and USA must develop or integrate objectives and exercises into phased training, varying between supported and supporting exercises for all units.

COMBINED ARMS COORDINATION

The battlefield is more dynamic than ever before. Technology at the lowest levels has helped bring this along. CAS was thought to be a thing of the past, but increased urbanization and development of our enemy's capabilities has changed that dramatically. It will be the challenge of the future to make use of the lessons learned and develop our schools and training to address these challenges.

The USAF CAS aircrew and FAC(A) are extensions of the ground commander. The JTAC is the conduit and the training must reflect this understanding. It is not possible to simulate working with the ground scheme of maneuver. To do so will only cause great confusion when forces have to work together for the first time on the battlefield. It is imperative that CAS aircrew understand combined arms, the coordination necessary, and be able to execute on an event-based timeline.

Finally the FAC(A)/JTAC community must train to a more severe standard. Combined arms integration must be achieved. Simulation of artillery is not acceptable; aircrew must see real life challenges in working with indirect fire assets and agencies. Working with USMC and US Army rotary-wing aircraft must also be coordinated. The integration at the staff level will help the USAF FAC(A) understand the clearance of fires better as well. It will be up to HQ USAF and HQ USA to listen to the lower level commanders to find the perfect way to task assets to each prospective school and LFEs.

JTAC / ALO TRAINING

A greater link between the professional JTAC and CAS aircrew must be made. USMC aircrew have a direct link to the FAC on the ground, they are all USMC aviators. While the career ALO program may work towards this, there has to be a true integration of the CAS fight in the USAF. Setting a standard and developing greater coordination between the ground controller and aircrew will help to build teamwork prior to stepping onto the battlefield.

It is not possible to simulate working with the ground scheme of maneuver. To do so will only cause great confusion when forces have to work together on the battlefield.

The USAF JTAC community requires greater combined arms integration in training at all levels. In the JTAC Qualification Training, Air Combat Command must put forward an effort to build a course that has fully supported air training. With a new JTAC memorandum of agreement (MOA) coming out, the time is right to support a full MOA compliant school much like that of Expeditionary Warfare Training Group Pacific/Atlantic (EWTG PAC/LANT) in the USMC. There are currently limited live sorties for JTAC trainees to train on. Therefore, USAF JTACs receive academic, simulation, and some live training and are finishing live control for certification at their home units. The USAF needs

to increase training opportunities at the schoolhouse so that trainees are full-up, certified JTACs upon graduation. Having the training increased at the school house will create greater standardization across the community.

Developing an advanced JTAC Instructor or JTACI course that utilizes assets from either Fighter Weapons School or integrating it into Red Flag exercises can build a link between the subject matter experts (SMEs) in the air and on the ground. While this standard may not be driven at the weapons school itself, the integration into the platforms training as support for the JTACI will build an understanding and trust that will hopefully transcend into the air support operations center (ASOC) and eventually the Army tactical operations center (TOC). Currently these exercises only utilize JTACs as support elements. This is an opportunity lost to forge a true air-ground team.

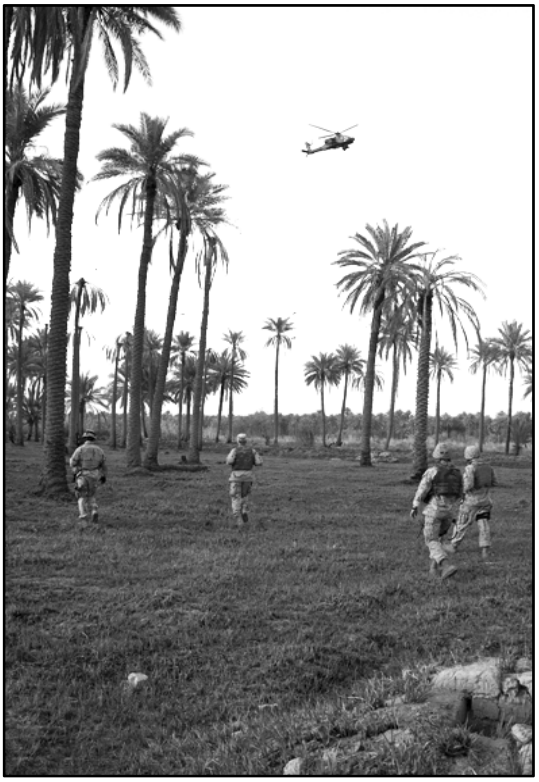
The ALO tour should be taken as a career building experience. This will require USAF leadership to view it as such.

To integrate, the ALO attached to Army units and his JTACs must become fully integrated into the staff and participate in training exercises that include combined arms from both USA and USAF. While there will be reluctance at many levels, the change will be worthwhile when fighters put ordnance on target, with the commanders full intent achieved. This shift in mindset for the ALO will be difficult and will require backing from his leadership, but the benefit will be better coordination and an officer that understands the unit he is supporting. The ALO tour should be taken as a career building experience. This will require USAF leadership to view it as such.

CONCLUSION

Combined Arms CAS requires a large amount of detailed planning and integration. It has large staff planning considerations and challenges. The USMC has refined these skills to a high standard, the USAF and USA owe it to the men and women on the ground to learn from the Marines and develop a truly combined arms team that trains to the highest standard, in the most severe realistic training.

This list of items may seem long and lofty, but it can be achieved by giving teeth to the experts and schools that already exist within the USAF and USA. Integration of aircrew into the fight, conducting live fire combined arms training, and developing our professional JTAC, FAC(A), and ALO can be achieved. There must be emphasis put into combined arms, otherwise we face the possibility of not being fully prepared for future conflicts, risking lives and success on the battlefield.



With a US Army (USA) AH-64D Apache Longbow attack helicopter flying air cover, USA Soldiers from 1st Battalion (BN), 155th Infantry (INF), 155th Brigade Combat Team (BCT) and US Marine Corps (USMC) Marines from 2nd Air Naval Gunfire Liaison Company (ANGLICO), search a small village for an insurgent mortar-man team that fired at a patrol base in Al Iskandariyah during Operation IRAQI FREEDOM (US Army Photo)

CAS Perspective from the Ground ALO/JTAC

From left, US Army SGT Travis Young and SSG Steve Majors, US Air Force A1C Bobby Olsen and Army SSG Jason McCullough prepare for a mission in the Avon Park Air Ground Training Complex in Avon Park, FL, 6 November 2007, during Atlantic Strike VI. Atlantic Strike is a US Central Command Air Forces initiative and the only joint, tactical-level, urban, close air support training event dedicated to supporting the war on terror. Young, Majors, and McCullough are platoon leaders and Olsen is a joint terminal attack controller. (USAF photo by A1C Stephenie Wade).

By
Capt Russell "Vifa" Campbell, USAF
and
TSgt Christopher Astrauskas, USAF

As close air support (CAS) pilots we have a good idea how to get the job done in the air but we lack the experience and knowledge of what is going on in the ground fight. As an A-10 pilot I thought I had a good understanding on the ground fight and how to meet the ground commander's intent. As a joint terminal attack controller (JTAC)/air liaison officer (ALO) instructor at the JTAC schoolhouse I didn't realize how much I didn't know until I came here. Getting more involved in JTAC training and integrating them into everything that we do will greatly enhance both JTACs and our capabilities downrange.

When the battalion air liaison officer (BALO) program was still operational for pilots it gave them the unique opportunity to see the fight from the ground operator's perspective. This program imbedded JTAC instructors into A-10 squadrons to train and get BALOs ready to go to war with operational Army units. This was a gateway for the JTACs to have a direct influence on the pilots who provided them CAS and for the pilots to learn what the fight was like from the ground. This also allowed the pilots to see how the tactical air control party (TACP) is integrated into Army's planning process and how that plan came to fruition at the tactical level. This level of training and day to day interaction gave pilots an opportunity to get their hands on TACP equipment and spend some time out on an observation point (OP) mission to experience how different the job of CAS can be when not flying. This was an invaluable

experience for a pilot to see how different the battlefield looks from the ground and to see what the jets look like as well. With these experiences and expertise these same pilots were able to educate the rest of their community about what it is like to be a JTAC.

Due to various reasons, the BALO program went away for young pilots. BALOs were replaced with enlisted BALOs (EBALOs) who are very experienced JTACs. This made an ALO assignment the only way for CAS pilots to get into the field and be part of a TACP. This is still a good program, but it has taken the JTAC/TACP expertise out of the squadrons. This doesn't give the squadrons many opportunities for Army mission development training, equipment training, and trips to the OP. Currently the Air Force is taking rated officers and attaching them to Army units as ALOs for 3 years. This program captures the expertise of fighter and bomber aviators and brings that expertise to the ground fight. A lot of these officers get JTAC qualified while serving as ALOs. Following their ALO tour, these officers go back to flying and they take this ground knowledge back to the flying units.

This was an invaluable experience for a pilot to see how different the battlefield looks from the ground and to see what the jets look like as well.

WHAT CAS PILOTS NEED TO KNOW

The fight we are fighting today is nothing like how we train. During training we show up on the range and the scenarios we practice are still mostly OP CAS. This is very different from how JTACs are employed downrange. For most OP CAS scenarios the JTAC is on top of the OP with all the equipment he can get his hands on. The special operations laser marker (SOFLAM) or ground laser target designator (GLTD II) is set up with the targets dialed in, the 9-lines are built, the targets are not moving and the JTACs have a view typically above the terrain where they can see all the targets. They may have ROVER readily available and are able to pull coordinates from Falconview or Precision Strike Suite-Special Operations Forces (PSS-SOF). Downrange, depending on the unit the JTAC is supporting will determine where he is physically located. More than likely he will be sitting in the tactical operations center (TOC) with radios and there will be a remotely piloted vehicle (RPV) feed, joint fires observer (JFO) or fires support team (FIST) providing him targeting information. He will most likely have a ROVER feed to help build situational awareness (SA) in the target area. With that in mind, Type 1 control is out of the question. Other times the JTAC will be out forward with his maneuver unit, able to provide Type 1, 2, or 3 controls, but again depending on the unit, he may not have all the tools at his disposal.

The JTACs travel with the Army in vehicles organic to that specific unit. Stryker, high mobility multi-purpose wheeled vehicle (HMMWV), or on foot, the JTAC will be with them; with equipment pertinent to that specific mission. JTACs have a lot of equipment that is heavy, difficult to set up and depending on the operation the JTAC may not bring everything. Furthermore, the batteries are large and don't last long. If there is no available preparation time to build geo-rectified gridded reference graphics (GRGs), or if the JTAC finds himself in a dynamic situation like a troops in contact (TIC), the JTAC will have to rely upon basic techniques to develop coordinates for their 9-lines. When out forward, the JTAC knows his position based on his global positioning system (GPS) and will shoot an azimuth with his compass and distance with a MK-VII laser rangefinder. He will then plot the coordinates on his map to pass for the 9-line. If capable, he will use Falconview, but by no means is this a 10 digit category (CAT) 2 or better coordinate. These coordinates are meant to get the pilots eyes/sensors

into the target area so the JTAC can give a "Talk-On" to the actual target. Depending upon the type of attack, bombs on target (BOT) or bombs on coordinates (BOC), the pilot may self generate coordinates for GPS guided munitions or will deliver the weapons visually.

WHAT CAS PILOTS CAN IMPROVE ON

Being on the other end of the CAS spectrum can provide a lot of lessons learned. With the current fight requiring our Air Force to shift its focus from missions like air superiority and suppression of enemy air defenses (SEAD) to CAS, we are starting to see many units struggle to get up to speed. Many of these units do not have CAS as a primary mission and must spin up to go to war by attending special training exercises like Green Flag. The focus on the current fight has made many fighter units weak when it comes to high threat scenarios with weather and deconfliction for artillery. Flying these high threat scenarios is almost a lost art throughout many fighter communities. Working a time over target (TOT) or time to target (TTT) into practice scenarios can help deal with the situation if it arises in theater.

There are many pilots that show up on station and question everything the JTAC says. As pilots we have a responsibility to minimize collateral damage and prevent fratricide or the killing of innocent civilians. Pilots have a tendency to try to drive the fight. In CAS, pilots need to remember that we are a support asset. We are there to support the units on the ground and meet the ground commander's intent. Anything that is non-standard and not in Joint Publication (JP) 3-09.3 needs to be briefed. Pilots and JTACs should strive to check each other to ensure that we are upholding the letter of the law: 3-09.3.

Also, JTACs need to request effects from the pilots and not dictate our tactics. Tell the pilots what effects you want and they will select the weapon that best suits the targets. Do not give restrictions unless there is a good reason for it. There are scenarios when giving restrictions or asking for certain weapons may be warranted. If you are in a TIC and 50 meters from the enemy then requesting the aircraft's guns over a bomb is more appropriate.

From the JTAC perspective, JP 3-09.3 is the only way to run a CAS fight. A strict adherence to this publication is the way to keep all CAS players on the same page and expedite attacks. Questioning the JTAC is good in some situations. Conversely, JTACs are now being taught to question pilots as well, and to be more directive in certain situations. This can apply to many situations, but primarily when it comes to BOC attacks and the category of coordinates attached to that BOC attack. Sometimes when the JTAC needs a BOC he usually needs an attack quickly and may not have time to explain the reasons to aircrews. The new 3-09.3 (8 July 2009) addresses some of these issues in the BOT/BOC discussions. Bottom line, more discussion is needed between squadron weapons officers and JTACs to help clear the muddy waters on issues that the new 3-09.3 has presented.

The Marines have the right mentality when it comes to CAS. The "every Marine is a rifleman" ethos is engrained into every Marine Corps aviator from the beginning of their training, giving them a working knowledge of the ground fight. Taking that one step further, many FAC(A) Marine pilots must do a ground FAC tour, often deploying as a JTAC. This gives Marine aviators a perspective some of their Air Force counterparts currently lack.

In CAS, pilots need to remember that we are a support asset. We are there to support the units on the ground and meet the ground commander's intent.

SUGGESTIONS FOR CAS PILOTS FROM A VETERAN JTAC

The following are a few suggestions for CAS from a JTAC perspective. On the topic of weaponeering, JTACs are getting better at this but ultimately the pilot should try to drive the desired effects unless otherwise directed by the JTAC. If a JTAC 'trumps' the pilot there is probably a good reason for it on the ground, e. g., the ground commander wants specific ordnance for whatever reason.

...when a JTAC is on range, use the JTAC whenever possible... Make scenarios challenging and dynamic...

JP 3-09.3 mandates a readback of lines 4, 6, restrictions, and any other items the JTAC requires. If a JTAC asks for a readback of a non-standard item it is usually for his SA or because it makes the situation in the air clearer to him. Knowing what type of delivery and attack will allow the JTAC to know which flight member should readback lines 4, 6, and restrictions and who to look for and give appropriate clearance to.

CAT coordinates aren't always essential. Knowing this from the JTAC will help the attacking aircraft, but on the flip side, it is NOT necessary to prosecute the attack. Nothing slows down weapons effects quite like a JTAC and aircrew getting spun up over the CAT coordinates, when time could be better spent employing or adjusting lead's hits.

During training, the JTAC and the supporting pilot both have specific training requirements, but when a JTAC is on range, use the JTAC whenever possible. Make scenarios challenging and dynamic, OP CAS is not relevant in the current fight and is considered negative training. Post mission debriefs are essential. Keep an open mind to other perspective (ground vs. air). Debriefs are often uncomfortable, but constructive as well. The best time to make mistakes aggressively is in training, where all may benefit from the lessons learned.

Training should not only focus on current real-world operations. Realize that the current fight is important, but we should not forget or place less emphasis on things like SEAD timing options, low altitude tactics, and Joint Air Attack Team (JAAT) to name a few. The next fight may force us to utilize these skills; therefore, we need to be as well rounded as possible when it comes to CAS.

OF NOTE:

The JTACs are using a copy of ALSA's very own JFIRE handbook.

A1C John Kingsley, radio operator maintainer and driver, 682nd Air Support Operations Squadron (ASOS), Shaw Air Force Base, SC, and A1C Chad Hutsell, Radio Operator, Maintenance and Driver (ROMAD), with the 15th ASOS, Ft. Stewart, GA, work with a military rugged tablet (MRT) during "Patriot Dixie," 31 March 2009. The MRT is a computer system that sends digital information to combat aircraft providing close air support much like text messaging (USAF photo by TSgt Jeff Walston)

Data Link CAS: Terminology and Application

A USAF A-10 Thunderbolt II aircraft from the 75th Expeditionary Fighter Squadron out of Bagram Air Base, Afghanistan, deploys flares during a combat patrol over Afghanistan 11 December 2008. (USAF photo by SSgt Aaron Allmon)

By
Capt Abram "SOLE" Burk, USAF

Increasing battlefield situational awareness (SA) traditionally requires a significant amount of voice communication between air and ground parties. The advent of data link technology enables digital close air support (CAS) integration (typically conducted via voice), facilitating timely and successful employment of airpower in support of the ground force commander. Effective data link operation requires an understanding of digital terminology, applications, and its limitations.

The words "data link" do not refer to any single system, but rather they refer to all data-passage systems. "Data link," as applied in this article, refers to Link 16 and Situation Awareness Data Link (SADL) even though concepts, terminology, and applications are independent of the individual systems. Integration between Link 16 and SADL players assumes an operational gateway Joint Range Extension (JRE) + Multifunctional Distribution System (MIDS) + SADL radio with line of sight (LOS) connectivity. Even though variable message format (VMF) and improved data modem (IDM) are other digital capabilities for CAS, they are outside this article's scope.

The advent of data link technology enables digital close air support (CAS) integration (typically conducted via voice), facilitating timely and successful employment of airpower in support...

Link 16 was originally designed and utilized for air-to-air missions focused on surveillance, control, weapons coordination, and inter-fighter digital coordination. It is often incorrectly referenced as an entire system or by its components. Joint Tactical Information Distribution System (JTIDS), MIDS, Tactical Digital Information Link-J (TADIL-J), and Fighter Data Link (FDL) are just a few terms commonly

associated with the entire system. JTIDS is a system encompassing terminals, software, hardware, RF equipment, and the waveform generated.[1] This entire system is a large volume of equipment. With the requirement of fighter-sized terminals, a compact version was created termed MIDS. Within MIDS, there are different terminals built for different fighters called Low Volume Terminals (LVT). F-16s and F-18s use LVT-1, while F-15s (A-E) operate with a LVT-3. The F-15's LVT-3 is also called FDL. Even though there is a difference between the terminals' size, quantity, and quality of information passed, from the user's standpoint, it's transparent.

SADL was created primarily as an air-to-ground and ground-to-ground system with a less robust air-to-air capability. It is typically called SADL (the software), or Enhanced Positional Location Reporting System (EPLRS)—the radio terminal hardware through which SADL operates. An EPLRS radio is not necessarily SADL capable, but must include specific software. Current users include A-10s, some Block 30 F-16s, and some JTACs, with future expansions to the Air Force HH-60s and HC-130s.

With the evolution of digital capabilities in the cockpit, there are now three main ways to pass information: via voice, digital targeting messages, and digital text messages.

With the evolution of digital capabilities in the cockpit, there are now three main ways to pass information: via voice, digital targeting messages, and digital text messages. Though voice is most utilized, digital targeting and text messages expand the existing methods, potentially enhancing and expediting target and/or friendly identification.

Data link has many different types of data transmission between users within a network. Some data sent are pilot-directed inputs, while other data are passively sent from the aircraft without any pilot action. Passage of information within SADL and Link 16 is via J-series messaging, Military Standard (MIL-STD) 6016. A J-series message is a fixed-format message, containing tactical data and commands, which is used to exchange information. Link 16 and SADL cannot operate directly with each other due to data link infrastructure differences; thus, a gateway is required to transfer data between Link 16 and SADL players. This article will focus primarily on J-series messages: **J2.0**, **J2.2**, **J3.1**, **J3.5**, **J12.0**, **J12.6**, **J16.0**, and **J28.2**.

The **J2.X** series messages are called Precise Participant Location and Identification (PPLIs)—symbology reflecting the current position of that player. Air players in any given network are shown as a **J2.2** whether part of the flight or just part of the donor list (typically denoted as a circle with a vector line). JTACs may appear as either an additional air player (for example a **J2.2** could represent a JTAC utilizing Jockey software on EPLRS/SADL within LOS of a SADL participant) without a vector. Furthermore, a JTAC may be displayed as a **J2.0** (Indirect Interface PPLI) when a JTAC is transmitting his position via satellite communications (SATCOM) from a Tactical Air Control Party-Close Air Support System (TACP-CASS) terminal to an air support operations center (ASOC) gateway.[2] The symbology for both a **J2.0** and **J2.2** is very similar. This difference in the JTAC symbol is based on the JTAC system and the broadcast method, LOS or beyond line of sight (BLOS).

The **J3.X** series of messages are called surveillance tracks. These messages are generally populated by higher echelons of command and control (C2) —typically the ASOC, direct air support center (DASC), tactical operations center (TOC), combined air operations center (CAOC), E-3 Airborne Warning and Control System (AWACS), RC-135 Rivet Joint (RJ), and E-8 Joint Surveillance Target Attack Radar System (JSTARS). For CAS, the two

main **J3.X** series messages are a **J3.1** Emergency Point, and a **J3.5** Land Track. **J3.1** messages are traditionally used for downed aircraft and personnel recovery (PR)-type events. The **J3.5** is one of the most common messages published by C2. **J3.5** messages always include track position, course, and speed; moreover, they typically include identification (ID) (friendly, neutral, suspect, unknown, or hostile), platform type (such as armor, troop, artillery, antiaircraft, etc.) and other amplifying information.[3]

The **J12.X** series of messages are Control messages. The **J12.0** message is a C2 Mission Assignment used for tasking, while a **J12.6** is a Target Sorting message (certain **J12.6** messages are sensor points of interest [SPIs]). Most aircraft on the data link have the ability to receive a **J12.0** (which requires a response from the aircraft, either WILCO/CANTCO) and transmit/receive a **J12.6**. Currently, there is not a **J12.0** mission assignment (MA) message for CAS; however, the ATTACK MA can be used for CAS tasking. This message includes target and elevation. There is no digital 9-line with J-series messaging. A-10Cs are currently the only fighter aircraft with the ability to transmit ATTACK **J12.0**s. In contrast, generating a **J12.6** (as a SPI or "point") is not as time consuming and can be sent by any USAF fighter aircraft. In the CAS fight, a **J12.6** primarily designates the target, a mark point, or a sensor's LOS. The **J12.6** is a way to get other data link participants cued to a single location (for visual ID and targeting) with minimal voice communication.

The last two J-series messages discussed are the **J16.0** Imagery message and the **J28.2** Free-Text message. The **J16.0** is the capability for transmitting a captured image from an onboard source (situation display, weapon's display, targeting pod, etc.) and sending it to another network participant. The **J28.2** message can only be generated by certain aircraft and C2 platforms, while almost all airframes can read them.

While these annotations for message types can be confusing, it's essential that pilots use this common language to reference the information appropriately. Communication regarding these message sets is also important. Figure 1 (on the next page) is a list of data link brevity terms discussing CAS relevant items.[4, 5] This list does not include some terms discussed in the multi-Service Brevity codes publication, but instead focuses on digital CAS specific terms.

While these annotations for message types can be confusing, it's essential that pilots use this common language to reference the information appropriately.

In order for network users, specifically fighters, to send J-series messages to other participants, pre-mission planning is required. The OPTASKLINK should be referenced for the overall data link settings while the air tasking order (ATO) should be utilized for players in a specific area of operations (AO). For air players to utilize J-series messaging, they must be part of a local group.

From the Air Force perspective, there are two local groups. The first group, consisting of 4-8 members is called the flight (or team), all typically in the same formation. The other local group is called the donor list. This is a list of air players that the flight/team will exchange J-series messaging with for targeting/SA purposes (**J12.0**, **J12.6**, **J16.0**, **J28.2**, etc.). Donor list capacity and population differs between aircraft. While the data link can show many tracks and specific information (**J2.0**, **J2.2**, **J3.1**, and **J3.5**), two-way digital communication must be through flight/team and donors. For example, for Hog 1 to broadcast a **J12.6** to Viper 1, Hog 1 must have Viper 1 in his donor list and vice versa. Other requirements may exist for dissimilar fighters to

Term	3-1 Definition	A-10 Remarks
CONTACT (Point of Reference)	Acknowledge sighting	Implies visual contact with a reference, not identified as Friendly or Hostile
CONTACT POINT		Implies visual contact with broadcast 12.6 in Tactical Awareness Display (TAD)
HOOK (Point of Reference)	Link 16 directive call to cue sensors to A/G point	Directive call to use TAD to hook a particular symbol (SADL)
POINT	Link point / track of interest; can be associated with a directive call	Specifically, refers to 12.6 broadcast
DATA (Object w/Position)	Standby for data link message concerning object at stated location	Specifically, refers to text messages or CAS message (28.2, 12.0)
STANDBY POINT / DATA (Bearing/Range) or Description		Informative call that a data link message is being sent. Point is used for 12.6 broadcast. Data used for a 28.2 or 12.0
ZAP POINT / DATA	Request for data link information	Point refers to 12.6, data refers to 28.2 or 12.0
DROP POINT	Data link target sorting message is no longer needed/ desired	Directive call to terminate 12.6 broadcast
HOLD POINT	Maintain Primary Designated Target on the current track to maintain to the data link 12.6	Continue to broadcast 12.6
CHECKPOINT		Directive/descriptive call to check 12.6 broadcast setting (ex: current target)
MATCH POINT		Directive call to hook a broadcast 12.6 and ZAP POINT back for confirmation
TIMBER	The Link 16 network	
TIMBER SWEET	Confirms receipt of data link information	
TIMBER SOUR	Potential problems with the net entry; initiates pre-mission link troubleshooting	
HOLLOW	Any data link message not received	
CHECKTIDS	Directive/descriptive call to reference data link display; may be followed by amplifying info	
JACKAL	Surveillance NPG of Link 16/TADIL J	Reference surveillance track numbers with the term "JACKAL <TN>" Normally used in reference to land track (3.5).
COPY		Directive call to input a hooked symbol on the TAD into the next available mission point
TARGET POINT (Bearing/Range)	Target the reference data link target sorting message	Directive call to make data link point SPI in preparation for a system delivery

Figure 1. US Air Force / A-10 Example CAS Data Link Communication Terms Information Flow

share **J12.6** messages. For example, in order for the A-10C to receive an SPI message from an F-16 equipped with Link 16, the F-16 targeting pod (TGP) LOS must be sent.

Based on data link capabilities, in-flight preparation starts well prior to the AO update. Combined with a moving map or horizontal situation display (HSD), users may be able to receive an initial AO update (threats, targets, friendlies, artillery, and clearance [TTFAC]) prior to takeoff. With information (typically **J3.5** messages) published by C2 (such as the ASOC), data link equipped fighters may have a more comprehensive picture of the battlefield. The methodical scan of an AO (as directed by the flight lead) to ensure that all pertinent information is gathered by the flight is called an "AO sweep." Flight leads should annotate track (**J3.5**) locations via coordinates and bullseye location to ensure this information is not lost based on LOS with the C2 agency. For example, flight leads should copy factor threat tracks, troops in contact (TIC) tracks, and emergency points into their aircraft systems. Each track (**J3.5**) has its own specific track number (TN). As the AO sweep progresses, flight leads should reference each **J3.5** via bullseye and/or TN (i.e., *TN 12345* would be passed as "*JACKAL 12345*") to convey the picture to the flight. In addition, the ASOC may have the ability to send **J28.2** messages for AO update amplifiers. **J28.2** transmitters should limit

…flight leads should copy factor threat tracks, troops in contact (TIC) tracks, and emergency points into their aircraft systems.

message lengths to 28 characters per line to avoid possible data corruption among platforms. **J28.2s** from a C2 agency can supplement the AO sweep with additional details. Additionally, fighters can send a **J28.2** for check-in and other administrative functions in a communication limited environment to **J28.2** capable JTACs or agencies. Also, these fighters may send **J28.2** messages, or even **J12.6s**, when departing an AO in order to accomplish an AO handoff. However, transmission of the **J12.6** assumes that each flight has placed the outgoing fighter on its donor list. As a technique, if donor/team space is limited, only place the flight leads of each formation airborne during the respective vulnerability time. Despite data link's capability to provide vast amounts of SA to individual users, it does not replace voice communication. One reason for this is that **J3.5s** and **J28.2s** do not provide any automatic reply from the user to confirm receipt. In addition, the information is only as current as its last update from the C2. As a CAS fight evolves, C2 may not be in the loop with the most up-to-date information and only voice communication can fill that gap.

As fighters enter the CAS fight and into JTAC control, digital information passage should be tempered with the current situation. Due to the nature of CAS, JTACs may not have the time, equipment, or necessity to send digital information. If the JTAC is digital capable, finding the friendly location for subsequent employment may be quicker. The JTAC's location may be represented by a **J3.5** (transmitted by C2/ASOC), **J2.0** or **J2.2** (equipment dependent as previously discussed). Any of these positional reports aid in finding the friendly position, but they may not define the friendly position. Being "visual friendlies" will still require eyeballs outside the cockpit. With data link, a JTAC operating certain systems (or flight lead) can broadcast coordinates to fighters (or other flight members) via a **J12.6** (target sorting) message. Using this **J12.6**, fighters can cue onboard sensors to that location to confirm or refine target coordinates. With the A-10C Suite 5/6, for example, each **J12.6** includes an index number to ensure the receiver is using the current **J12.6** (in order to defeat latency issues and old **J12.6s** still appearing on the data link). Figure 2 gives an inter-flight communication example of passing target information via **J12.6** message.

If the JTAC is digital capable, finding the friendly location for subsequent employment may be quicker.... Being "visual friendlies" will still require eyeballs outside the cockpit.

For example, Hog 1 has identified a cluster of vehicles for GBU-38 (or other precision guided munition) employment. To pass the proper locations to the flight, Hog 1 will obtain the proper coordinates suitable for employment and pass them throughout the flight.

***Hog 1**: "JTAC, Hog 1, contact TGP, 4 x vehicles arrayed east to west."*

***Hog 1:** "Hog 3, stand by point index 1, label T1C."*

***Hog 3:** "Hog 3, contact point, 2344."*

***Hog 1:** "Hog 2/4, stand by point index 2/3, label T1B/D."*

***Hog 2/4:** "Hog 2/4, contact point, 2344."*

***Hog 1:** "Hog, fighter to fighter, container, JDAM instantaneous, in south, off west, sort letters."*

*(**Note:** This discussion centers on a bomb on target (BOT) scenario, as opposed to a bomb on coordinate (BOC) situation. Reference JP 3-09.3 for further discussion of BOT, BOC, and read back requirements.)*

This terminology directs the flight member to consult the image on the HSD, locate the J12.6 from the flight lead, and copy that point into his own system with the respective label, T1C.

This response from each flight member confirms receipt of the appropriate J12.6, confirms the point is loaded into the system, and passes the elevation (2344) included with the J12.6 as an additional confirmation of the correct coordinate.

This sort confirms the point passed to each respective member (FL=T1A, 2=T1B, 3=T1C, 4=T1D) is a targetable coordinate for the planned attack.

Figure 2. Example Voice Communication for In-Flight 12.6 Message Passing

In a TIC, timeliness is essential due to friendly ground forces receiving effective fire.[5] At a minimum, pilots need target and friendly locations, factor threats, and restrictions in order to employ effectively. With a non-digital JTAC, or when time/conditions do not permit the JTAC to use digital devices, flight leads should use voice communications to quickly get information. Once "visual friendlies," the target can be marked by a **J12.6** from the JTAC, FAC(A), or on-scene commander. One technique is to allow the primary flight lead or on-scene commander to employ first via voice and visual confirmation.

Units should strive to teach the proper balance of data link and voice communication to provide timely, efficient, and effective CAS.

Following that employment, the flight lead can quickly pass initial target area SA through a **J12.6** by broadcasting either his TGP LOS or employment location as the SPI. For example:

Hog 3: *"Hog 1, Hog 3 visual friendly location, no-joy on target."*

Hog 1: *"Hog 3, Hog 1, stand by point, target location, personnel in the tree line."*

This terminology directs the additional flight to acquire the J12.6 on the HSD/MFCD, but it is not a requirement to enter the coordinates into a system.

Hog 3: *"Hog 3, contact point."*

Though the **J12.6** is marking the target location (much like a white phosphorus rocket), it should not be the sole means of target identification. On a situational display, most fighters will have both a target identifier and line from the broadcaster to the target. This provides verification of the sender and his target. While a set of fighters prosecutes the TIC, other fighters checking in (and on the donor list) may gain awareness on the TIC without interrupting any communication flow between the current fighters and ground party. These fighters should require less of a talk-on and less communication prior weapons employment. However, this does not relax the requirement for the aircraft to gain TALLY and/or VISUAL prior to employment. Additionally, voice communication is still required for either data link verification or final coordination. Units should strive to teach the proper balance of data link and voice communication to provide timely, efficient, and effective CAS.

Data link (Link 16 and/or SADL) has the capability to enhance CAS operations on the battlefield. With this advantage, users must recognize when to apply the technology and, more importantly, when it is becoming a limiting factor. Mutual support contracts must balance the amount of SA that can be gleaned from data link, with the amount of heads-down time required to process the situation. Despite limiting factors, proper training, system setup, flight contracts, and digital execution can enable more efficient CAS operations while providing the enemy less opportunity to deny, disrupt, or deceive voice communication.

END NOTE

[1] *Understanding Link 16, A Guide Book for USAF Operators*, December 2002.

[2] Mills, Maj Scott, 66 WPS, Nellis AFB, NV, Interview in Feb 2010.

[3] *Understanding Link 16, A Guide Book for USAF Operators*, December 2002.

[4] Air Force Tactics Techniques and Procedures (AFTTP), Volume *3-1.General Planning*, May 2006.

[5] AFTTP, Volume *3-1.A-10*, June 2007.

CAS in a Different Kind of War

USAF JTAC TSgt Joel McPherson, center, calls for close air support during a firefight with insurgents near the village of Qatar Kala on 29 July in the Watapur Valley, Afghanistan. (AF Times Photo by Colin Kelly, staff)

By
Lt Col Matt Foley, USAF
and Maj Bryan Trinkle, USAF

There has been a change in the expectations and requirements for the employment of close air support (CAS) in Afghanistan over the past 8 months. Unlike any time in recent US military operations, the strategic impact of tactical engagements is being scrutinized at the highest theater command level. Increasingly complex command directives and rules of engagement (ROE) have been implemented to ensure that kinetic engagements are consistent with the principles of counter insurgency warfare and support the theater commander's intent. These developments have major implications for joint terminal attack controllers (JTACs) operating in Afghanistan. The keys to success in this demanding environment are thorough predeployment preparation, continuous study in theater, and appropriate advice to supported ground force commanders.

With an average of three kinetic events a day throughout Afghanistan, it is a certainty that any air-to-ground engagement will be reviewed at the International Security Assistance Force (ISAF) command level to ensure the strike was conducted within the parameters of the applicable ROE and in the spirit of the current ISAF Commander (COMISAF) Tactical Directive (TD). COMISAF has highlighted his concern to all commanders, stating "I expect leaders at all levels to scrutinize and limit the use of force like close air support (CAS) against residential compounds and other locations likely to produce civilian casualties in accordance with this guidance. Commanders must weigh the gain of using CAS against the cost of civilian casualties, which in the long run make mission success more difficult

and turn the Afghan people against us."[1] It is absolutely imperative that all tactical air control party (TACP) and JTAC personnel conducting operations in Afghanistan are well versed in the spirit and letter of the laws laid out in Operation ENDURING FREEDOM (OEF) and ISAF ROE, and have a complete understanding of how to apply these ROE on the battlefield. Upon entering the theater, JTAC crews will be provided comprehensive scenario-based training to document and ensure familiarity with the ROE and its practical application as part of their theater qualification training. However, it is critical that deploying terminal attack control teams familiarize themselves with ISAF and OEF ROE and COMISAF TD as part of their predeployment training. This guidance is available on SIPRnet at both the US Central Command (USCENTCOM) and US Air Force Central (USAFCENT) websites. Additional information should soon be available on 561st Joint Tactics Squadron's and 504th Expeditionary Air Support Operations Group's websites which will help span the accessibility gap of between the theater's ISAF Secret network and the SIPRnet.

...it is critical that deploying terminal attack control teams familiarize themselves with ISAF and OEF ROE and COMISAF TD as part of their predeployment training.

Once established with their supported ground force, JTAC team members will be informed of ROE adjustments via special instructions (SPINS) changes and Joint Controller Information File (JCIF) updates. During a 6-month deployment several modifications to the ROE are likely. These updates can be driven by shortcomings identified through single events, or changes in the overall nature of the conflict. The training scenarios will be updated as well and are provided to the fielded TAC teams through secure (SIPR/ISAF Secret) websites. Careful review and discussion of any ROE change or amplification of the TD is essential to ensure full comprehension and appropriate application of these guidelines on the battlefield.

Finally, close coordination with supported ground force commanders will ensure lethal airpower is employed effectively, where and when appropriate. Several incidents in recent months have highlighted deficiencies in understanding and application of air-to-ground ROE at the tactical commander level. The air-to-ground weapons employment civilian casualty incident in Kunduz is a high profile example of the ramifications and political consequences of a tactical misjudgment in CAS execution that quickly led to strategic implication. The fallout in the international community and among coalition forces has had immeasurable second and third order effects.

Commanders have broad responsibilities and count on timely, complete, and accurate advice from their terminal attack control (TAC) teams. As part of a joint team, JTAC expertise in ROE is essential to ensure commanders have all the information they need to make sound tactical decisions in the heat of battle. If there is time for discussion, the JTAC's advice can be the difference between a tactical victory and a strategic mistake. If there is not time for discussion, it is probably a self-defense situation, and the ROE becomes much more permissive. Full understanding of collateral damage estimate requirements, target engagement authority, appropriate command echelon approval, and ROE strike prerequisites is critical to mission success. Sound complex? You bet. Our allies and the US military invest a tremendous amount of trust in those we train and certify to provide TAC, and that trust has been justified under the most trying conditions. Our JTAC teams are up to the challenge.

END NOTE

[1] Gen Stanley A. McChrystal, ISAF Tactical Directive, July 2009.

CURRENT ALSA PUBLICATIONS

AIR BRANCH – POC alsaa@langley.af.mil

TITLE	DATE	PUB #	DESCRIPTION / STATUS
AOMSW *Multi-Service Tactics, Techniques, and Procedures for Air Operations in Maritime Surface Warfare* **Distribution Restricted**	17 NOV 08	NTTP 3-20.8 AFTTP 3-2.74	Description: This publication consolidates Service doctrine, TTP, and lessons-learned from current operations and exercises to maximize the effectiveness of "air attacks on enemy surface vessels". Status: **Current**
AVIATION URBAN OPERATIONS *Multi-Service Tactics, Techniques, and Procedures for Aviation Urban Operations* **Distribution Restricted**	9 JUL 05	FM 3-06.1 MCRP 3-35.3A NTTP 3-01.04 AFTTP 3-2.29	Description: Provides MTTP for tactical-level planning and execution of fixed- and rotary-wing aviation urban operations. Status: **Assessment**
IADS *Multi-Service Tactics, Techniques, and Procedures for an Integrated Air Defense System* **Distribution Restricted**	1 MAY 09	FM 3-01.15 MCRP 3-25E NTTP 3-01.8 AFTTP 3-2.31	Description: Provides joint planners with a consolidated reference on Service air defense systems, processes, and structures to include integration procedures. Status: **Current**
JFIRE *Multi-Service Procedures for the Joint Application of Firepower* **Distribution Restricted**	20 DEC 07	FM 3-09.32 MCRP 3-16.6A NTTP 3-09.2 AFTTP 3-2.6	Description: Pocket size guide of procedures for calls for fire, CAS, and naval gunfire. Provides tactics for joint operations between attack helicopters and fixed-wing aircraft performing integrated battlefield operations. Status: **Current**
JSEAD / ARM-J *Multi-Service Tactics, Techniques, and Procedures for the Suppression of Enemy Air Defenses in a Joint Environment* **Classified SECRET**	28 MAY 04	FM 3-01.4 MCRP 3-22.2A NTTP 3-01.42 AFTTP 3-2.28	Description: Contributes to Service interoperability by providing the JTF and subordinate commanders, their staffs, and SEAD operators a single, consolidated reference. Status: **Current**
JSTARS *Multi-Service Tactics, Techniques, and Procedures for the Joint Surveillance Target Attack Radar System* **Distribution Restricted**	16 NOV 06	FM 3-55.6 MCRP 2-24A NTTP 3-55.13 AFTTP 3-2.2	Description: Provides procedures for the employment of JSTARS in dedicated support to the JFC. Describes multi-Service TTP for consideration and use during planning and employment of JSTARS. Status: **Assessment**
KILL BOX *Multi-Service Tactics, Techniques, and Procedures for Kill Box Employment* **Distribution Restricted**	4 AUG 09	FM 3-09.34 MCRP 3-25H NTTP 3-09.2.1 AFTTP 3-2.59	Description: Assists the Services and JFCs in developing, establishing, and executing Kill Box procedures to allow rapid target engagement. Describes timely, effective multi-Service solutions to FSCMs, ACMs, and maneuver control measures with respect to Kill Box operations. Status: **Current**
SCAR *Multi-Service Tactics, Techniques, and Procedures for Strike Coordination and Reconnaissance* **Distribution Restricted**	26 NOV 08	FM 3-60.2 MCRP 3-23C NTTP 3-03.4.3 AFTTP 3-2.72	Description: This publication provides strike coordination and reconnaissance (SCAR) MTTP to the military Services for the conduct of air interdiction against targets of opportunity. Status: **Current**
SURVIVAL, EVASION, AND RECOVERY *Multi-Service Procedures for Survival, Evasion, and Recovery* **Distribution Restricted**	20 MAR 07	FM 3-50.3 NTTP 3-50.3 AFTTP 3-2.26	Description: Provides a weather-proof, pocket-sized, quick reference guide of basic survival information to assist Service members in a survival situation regardless of geographic location. Status: **Current**
TAGS *Multi-Service Tactics, Techniques, and Procedures for the Theater Air-Ground System* **Distribution Restricted/ REL ABCA**	10 APR 07	FM 3-52.2 NTTP 3-56.2 AFTTP 3-2.17	Description: Promotes Service awareness regarding the role of airpower in support of the JFC's campaign plan, increases understanding of the air-ground system, and provides planning considerations for the conduct of air-ground ops. Status: **Current**

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TITLE	DATE	PUB #	DESCRIPTION / STATUS
TST (DYNAMIC TARGETING) *Multi-Service Tactics, Techniques, and Procedures for Targeting Time-Sensitive Targets* **Distribution Restricted**	20 APR 04	FM 3-60.1 MCRP 3-16D NTTP 3-60.1 AFTTP 3-2.3	Description: Provides the JFC, the operational staff, and components MTTP to coordinate, de-conflict, synchronize, and prosecute TSTs within any AOR. Includes lessons learned, multinational and other government agency considerations. Status: **Revision**
UAS *Multi-Service Tactics, Techniques, and Procedures for Tactical Employment of Unmanned Aircraft Systems* **Distribution Restricted**	3 AUG 06	FM 3-04.15 NTTP 3-55.14 AFTTP 3-2.64	Description: Establishes MTTP for UAS addressing tactical and operational considerations, system capabilities, payloads, mission planning, logistics, and most importantly, multi-Service execution. Status: **Revision**

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TITLE	DATE	PUB #	DESCRIPTION / STATUS
ADVISING *Multi-Service Tactics, Techniques, and Procedures for Advising Foreign Forces* **Distribution Restricted**	10 SEP 09	FM 3-07.10 MCRP 3-33.8A NTTP 3-07.5 AFTTP 3-2.76	Description: This publication serves as a reference to ensure coordinated multi-Service operations for planners and operators preparing for, and conducting, advisor team missions. It is intended to provide units and personnel that are scheduled to advise foreign forces with viable TTP so that they can successfully plan, train for, and carry out their mission. Status: **Current**
AIRFIELD OPENING *Multi-Service Tactics, Techniques, and Procedures for Airfield Opening* **Distribution Restricted**	15 MAY 07	FM 3-17.2 NTTP 3-02.18 AFTTP 3-2.68	Description: A quick-reference guide to opening an airfield in accordance with MTTP. Contains planning considerations, airfield layout, and logistical requirements for opening an airfield. Status: **Current**
CORDON AND SEARCH *Multi-Service Tactics, Techniques, and Procedures for Cordon and Search Operations* **Distribution Restricted**	25 APR 06	FM 3-06.20 MCRP 3-31.4B NTTP 3-05.8 AFTTP 3-2.62	Description: Consolidates the Services' best TTP used in cordon and search operations. Provides MTTP for the planning and execution of cordon and search operations at the tactical level of war. Status: **Assessment**
EOD *Multi-Service Tactics, Techniques, and Procedures for Explosive Ordnance Disposal in a Joint Environment* **Approved for Public Release**	27 OCT 05	FM 4-30.16 MCRP 3-17.2C NTTP 3-02.5 AFTTP 3-2.32	Description: Provides guidance and procedures for the employment of a joint EOD force. It assists commanders and planners in understanding the EOD capabilities of each Service. Status: **Revision**
MILITARY DECEPTION *Multi-Service Tactics, Techniques, and Procedures for Military Deception* **Classified SECRET**	12 APR 07	MCRP 3-40.4A NTTP 3-58.1 AFTTP 3-2.66	Description: Facilitate the integration, synchronization, planning, and execution of MILDEC operations. Servce as a "one stop" reference for service MILDEC planners to plan and execute multi-service MILDEC operations. Status: **Current**
NLW *Multi-Service Service Tactics, Techniques, and Procedures for the Tactical Employment of Nonlethal Weapons* **Approved for Public Release**	24 OCT 07	FM 3-22.40 MCWP 3-15.8 NTTP 3-07.3.2 AFTTP 3-2.45	Description: This publication provides a single-source, consolidated reference on the tactical employment of NLWs and offers commanders and their staff guidance for NLW employment and planning. Commanders and staffs can use this publication to aid in the tactical employment of NLW during exercises and contingencies. Status**: Current**
PEACE OPS *Multi-Service Tactics, Techniques, and Procedures for Conducting Peace Operations* **Approved for Public Release**	20 OCT 03 Change 1 incorporated 14 APR 09	FM 3-07.31 MCWP 3-33.8 AFTTP 3-2.40	Description: Provides tactical-level guidance to the warfighter for conducting peace operations. Status: **Current with Change 1**
TACTICAL CONVOY OPERATIONS *Multi-Service Tactics, Techniques, and Procedures for Tactical Convoy Operations* **Distribution Restricted**	13 JAN 09	FM 4-01.45 MCRP 4-11.3H NTTP 4-01.3 AFTTP 3-2.58	Description: Consolidates the Services' best TTP used in convoy operations into a single multi-Service TTP. Provides a quick reference guide for convoy commanders and subordinates on how to plan, train, and conduct tactical convoy operations in the contemporary operating environment. Status: **Current**

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TITLE	DATE	PUB #	DESCRIPTION / STATUS
TECHINT *Multi-Service Tactics, Techniques, and Procedures for Technical Intelligence Operations* **Approved for Public Release**	9 JUN 06	FM 2-22.401 NTTP 2-01.4 AFTTP 3-2.63	Description: Provides a common set of MTTP for technical intelligence operations. Serves as a reference for Service technical intelligence planners and operators. Status: **Assessment**
UXO *Multi-Service Tactics, Techniques, and Procedures for Unexploded Explosive Ordnance Operations* **Approved for Public Release**	16 AUG 05	FM 3-100.38 MCRP 3-17.2B NTTP 3-02.4.1 AFTTP 3-2.12	Description: Describes hazards of UXO submunitions to land operations, addresses UXO planning considerations, and describes the architecture for reporting and tracking UXO during combat and post conflict. Status: **Revision**
CFSOF I&I *Multi-Service Tactics, Techniques, and Procedures for Conventional Forces and Special Operations Forces Integration and Interoperability* **Distribution Restricted**	17 MAR 10	ATTP 6-03.05 MCWP 3-36.1 NTTP 3-05.19 AFTTP 3-2.73 USSOCOM Pub 3-33V.3	Description: This publication assists in planning and executing operations where conventional forces and special operations forces (CF/SOF) occupy the same operational environment. Status: **Approved**

COMMAND AND CONTROL (C2) BRANCH - POC: alsac2@langley.af.mil

TITLE	DATE	PUB #	DESCRIPTION / STATUS
AIRSPACE CONTROL *Multi-Service Tactics, Techniques, and Procedures for Airspace Control* **Distribution Restricted**	22 MAY 09	FM 3-52.1 AFTTP 3-2.78	Description: This MTTP publication is a tactical level document, which will synchronize and integrate airspace command and control functions and serve as a single source reference for planners and commanders at all levels Status: **Current**
BREVITY *Multi-Service Brevity Codes* **Distribution Restricted**	APR 10	ATTP 1-02.1 MCRP 3-25B NTTP 6-02.1 AFTTP 3-2.5	Description: Defines multi-Service brevity which standardizes air-to-air, air-to-surface, surface-to-air, and surface-to-surface brevity code words in multi-Service operations. Status: **Current**
CIVIL SUPPORT *Multi-Service Tactics, Techniques, and Procedures for Civil Support Operations* **Distribution Restricted**	3 DEC 07	FM 3-28.1 NTTP 3-57.2 AFTTP 3-2.67	Description: Fills the Civil Support Operations MTTP void and assists JTF commanders in organizing and employing Multi-Service Task Force support to civil authorities in response to domestic crisis. Status: **Assessment**
COMCAM *Multi-Service Tactics, Techniques, and Procedures for Joint Combat Camera Operations* **Approved for Public Release**	24 MAY 07	FM 3-55.12 MCRP 3-33.7A NTTP 3-13.12 AFTTP 3-2.41	Description: Fills the void that exists regarding combat camera doctrine and assists JTF commanders in structuring and employing combat camera assets as an effective operational planning tool. Status: **Current**
HAVE QUICK *Multi-Service Tactics, Techniques, and Procedures for HAVE QUICK Radios* **Distribution Restricted**	7 MAY 04	FM 6-02.771 MCRP 3-40.3F NTTP 6-02.7 AFTTP 3-2.49	Description: Simplifies planning and coordination of HAVE QUICK radio procedures. Provides operators information on multi-Service HAVE QUICK communication systems while conducting home station training or in preparation for interoperability training. Status: **Assessment**
HF-ALE *Multi-Service Tactics, Techniques, and Procedures for the High Frequency-Automatic Link Establishment (HF-ALE) Radios* **Distribution Restricted**	20 NOV 07	FM 6-02.74 MCRP 3-40.3E NTTP 6-02.6 AFTTP 3-2.48	Description: Standardizes high power and low power HF-ALE operations across the Services and enables joint forces to use HF radio as a supplement / alternative to overburdened SATCOM systems for over-the-horizon communications. Status: **Current**
JATC *Multi-Service Procedures for Joint Air Traffic Control* **Distribution Restricted**	23 JUL 09	FM 3-52.3 MCRP 3-25A NTTP 3-56.3 AFTTP 3-2.23	Description: Provides guidance on ATC responsibilities, procedures, and employment in a joint environment. Discusses JATC employment and Service relationships for initial, transition, and sustained ATC operations across the spectrum of joint operations within the theater or AOR. Status: **Current**

COMMAND AND CONTROL (C2) BRANCH - POC: alsac2@langley.af.mil			
TITLE	**DATE**	**PUB #**	**DESCRIPTION / STATUS**
JTF IM *Multi-Service Tactics, Techniques, and Procedures for Joint Task Force Information Management* **Distribution Restricted**	10 SEP 03	FM 6-02.85 (FM 101-4) MCRP 3-40.2A NTTP 3-13.1.16 AFTTP 3-2.22	Description: Describes how to manage, control, and protect information in a JTF headquarters conducting continuous operations. Status: **Assessment**
EW REPROGRAMMING *Multi-Service Tactics, Techniques, and Procedures for the Reprogramming of Electronic Warfare and Target Sensing Systems* **Distribution Restricted**	22 JAN 07	FM 3-13.10 (FM 3-51.1) NTTP 3-51.2 AFTTP 3-2.7	Description: Supports the JTF staff in planning, coordinating, and executing reprogramming of electronic warfare and target sensing systems as part of joint force command and control warfare operations. Status: **Revision**
TACTICAL CHAT *Multi-Service Tactics, Techniques, and Procedures for Internet Tactical Chat in Support of Operations* **Distribution Restricted**	7 JUL 09	FM 6-02.73 MCRP 3-40.2B NTTP 6-02.8 AFTTP 3-2.77	Description: This publication provides MTTP to standardize and describe the use of internet tactical chat (TC) in support of operations. It provides commanders and their units with guidelines to facilitate coordination and integration of TC when conducting multi-Service and joint force operations. Status: **Current**
TACTICAL RADIOS *Multi-Service Communications Procedures for Tactical Radios in a Joint Environment* **Approved for Public Release**	14 JUN 02	FM 6-02.72 MCRP 3-40.3A NTTP 6-02.2 AFTTP 3-2.18	Description: Standardizes joint operational procedures for SINCGARS and provides an overview of the multi-Service applications of EPLRS. Status: **Assessment**
UHF TACSAT/DAMA *Multi- Service Tactics, Techniques, and Procedures Package for Ultra High Frequency Tactical Satellite and Demand Assigned Multiple Access Operations* **Approved for Public Release**	31 AUG 04	FM 6-02.90 MCRP 3-40.3G NTTP 6-02.9 AFTTP 3-2.53	Description: Documents TTP that will improve efficiency at the planner and user levels. (Recent operations at JTF level have demonstrated difficulties in managing limited number of UHF TACSAT frequencies.) Status: **Assessment**

NEW PROJECTS

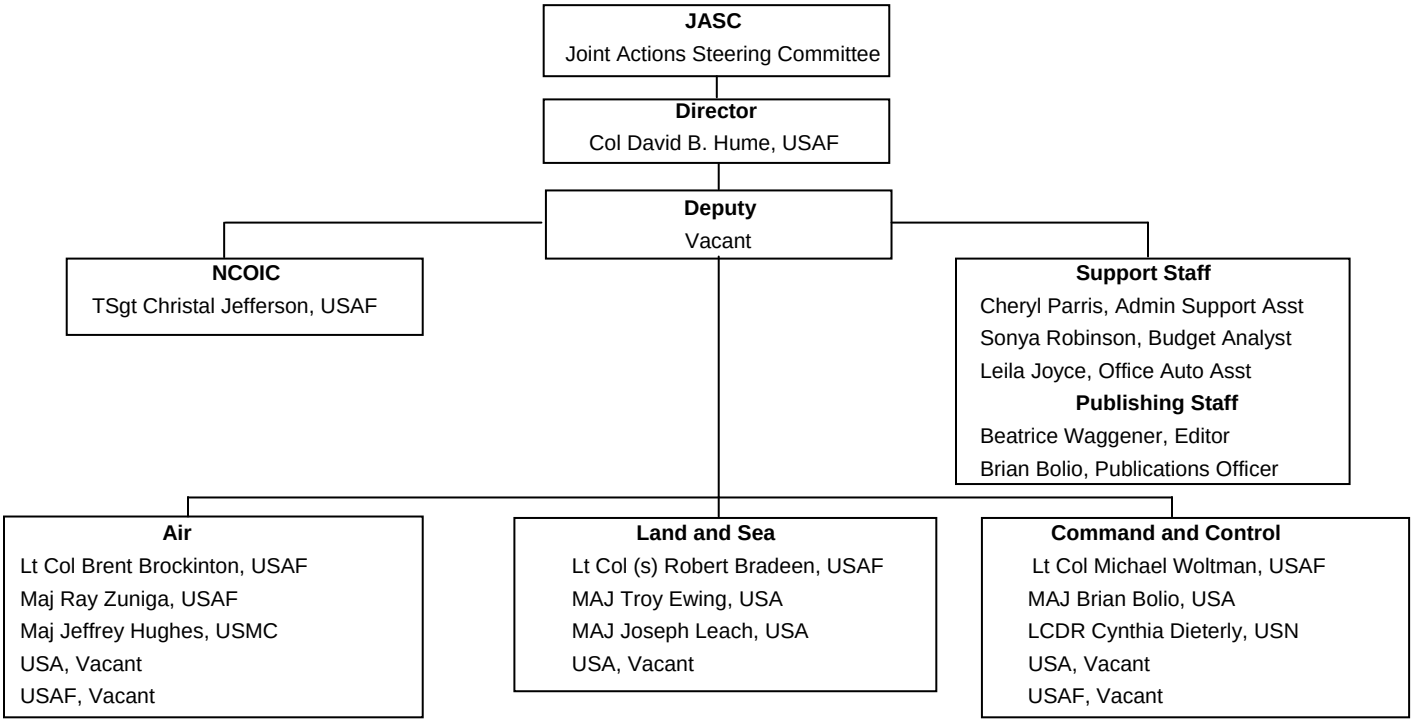
TITLE	SERVICE	DESCRIPTION / STATUS
Military Diving Operations (MDO) *Multi-Service Service Tactics, Techniques, and Procedures for Military Diving Operations* **Distribution Restricted**	USA USMC USN USAF	Description: This MTTP publication describes US Military dive mission areas (DMA) as well as the force structure, equipment, and primary missions that each Service could provide to a JTF Commander. Status: **Final Coordination Draft**

RECENTLY RESCINDED PUBLICATIONS

Joint Task Force Liaison Officer Integration (JTF-LNO) *– 27 January 03. Rescinded 29 September 09.*

Improved Data Modem Integration (IDM) *– 30 May 03. Rescinded 2 October 09.*

ALSA ORGANIZATION



Air Operations in Maritime Surface Warfare (AOMSW)
17 Nov 08

Aviation Urban Operations
9 Jul 05

Integrated Air Defense System (IADS)
1 May 09

Joint Application of Firepower (JFIRE)
20 Dec 07

Joint Surveillance Target Attack Radar System (JSTARS)
16 Nov 06

Kill Box Employment
4 Aug 09

Strike Coordination and Reconnaissance (SCAR)
26 Nov 08

Suppression of Enemy Air Defenses (JSEAD)
28 May 04

Survival, Evasion, and Recovery
20 Mar 07

Tactical Employment of Unmanned Aircraft Systems (UAS)
3 Aug 06

Targeting Time Sensitive Targets (TST)
20 Apr 04

Theater Air-Ground System (TAGS)
10 Apr 07

Advising Foreign Forces
10 Sep 09

Airfield Opening
15 May 07

Conducting Peace Operations (PEACE OPS)
14 Apr 09 (CH1)

Cordon and Search Operations
25 Apr 06

Explosive Ordnance Disposal (EOD)
27 Oct 05

Military Deception (MILDEC)
12 Apr 07

Nonlethal Weapons (NLW)
24 Oct 07

Tactical Convoy Operations (TCO)
13 Jan 09

Technical Intelligence (TECHINT)
9 Jun 06

Unexploded Explosive Ordnance Operations (UXO)
16 Aug 05

Conventional Forces / Special Operations Forces Integration and Interoperability (CFSOFI&I)
17 Mar 10

Airspace Control
22 May 09

Brevity Codes
Apr 10

Civil Support Operations
3 Dec 07

Combat Camera Operations (COMCAM)
24 May 07

Have Quick Radios
7 May 04

High Frequency-Automatic Link Establishment Radios (HF-ALE)
20 Nov 07

Joint Air Traffic Control (JATC)
23 Jul 09

Joint Task Force Information Management (JTF-IM)
10 Sep 03

Electronic Warfare Reprogramming
22 Jan 07

Internet Tactical Chat in Support of Operations (Tactical Chat)
7 Jul 09

Tactical Radios
14 Jun 02

Ultra High Frequency Tactical Satellite and Demand Assigned Multiple Access Operations (UHF TACSAT/DAMA)
31 Aug 04

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